

CSST Fire #11

- Energized Gas Line?
 - New construction
 - 2 Rock Chimneys
 - 95% Complete
 - 95% of piping black pipe
 - Only 2 runs of CSST

CSST Fire #11



CSST Fire #11



CSST Fire #11



CSST Fire #12

- Energized Gas Line Fire

CSST Fire #12



CSST Fire #12



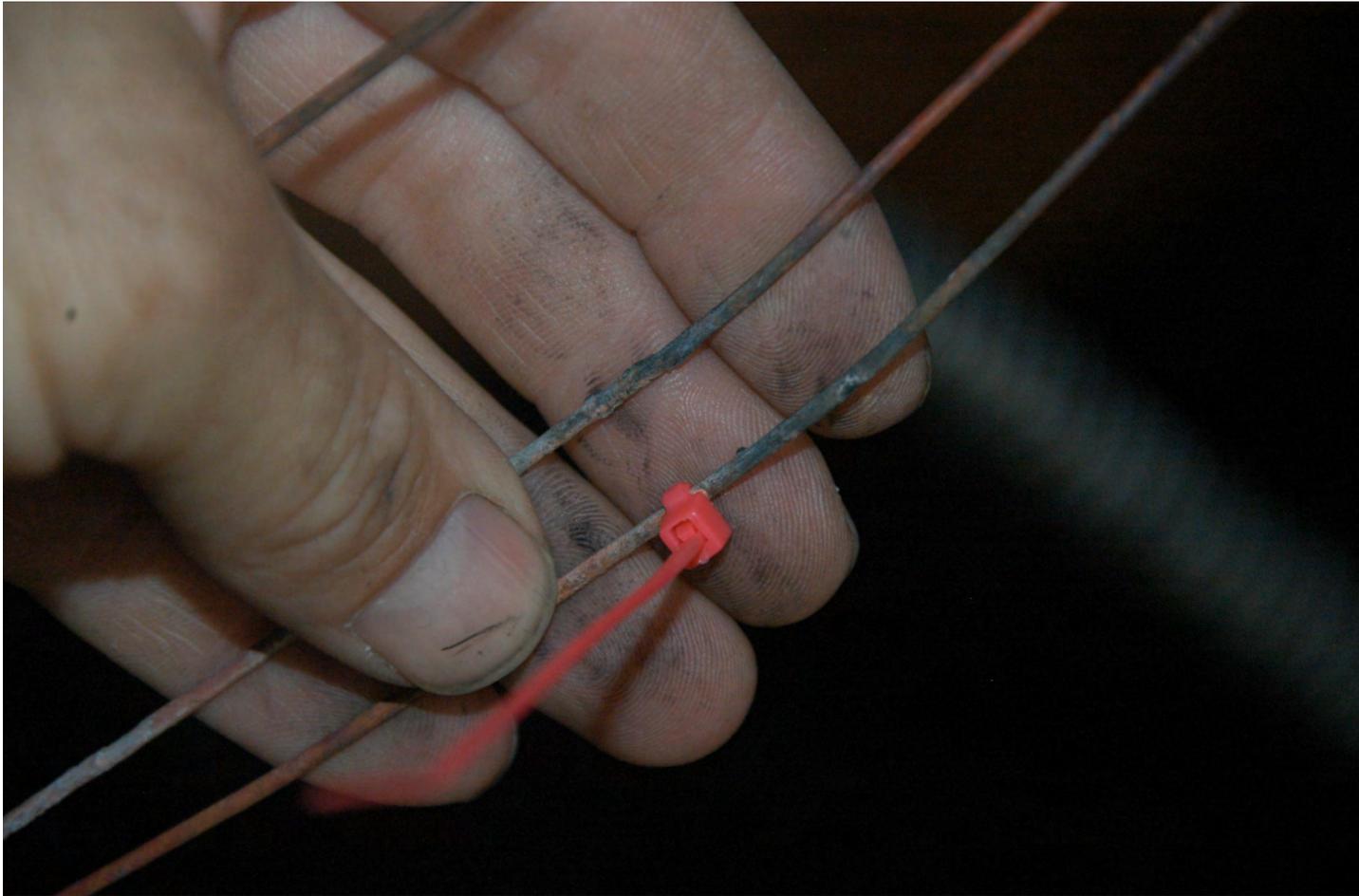
CSST Fire #12



CSST Fire #12



CSST Fire #12



CSST Fire #12



CSST Fire #13

- Energized Gas Line
 - Single Story Brick Residence
 - 15 Ω Ground Resistance

CSST Fire #13



CSST Fire #13



CSST Fire #13



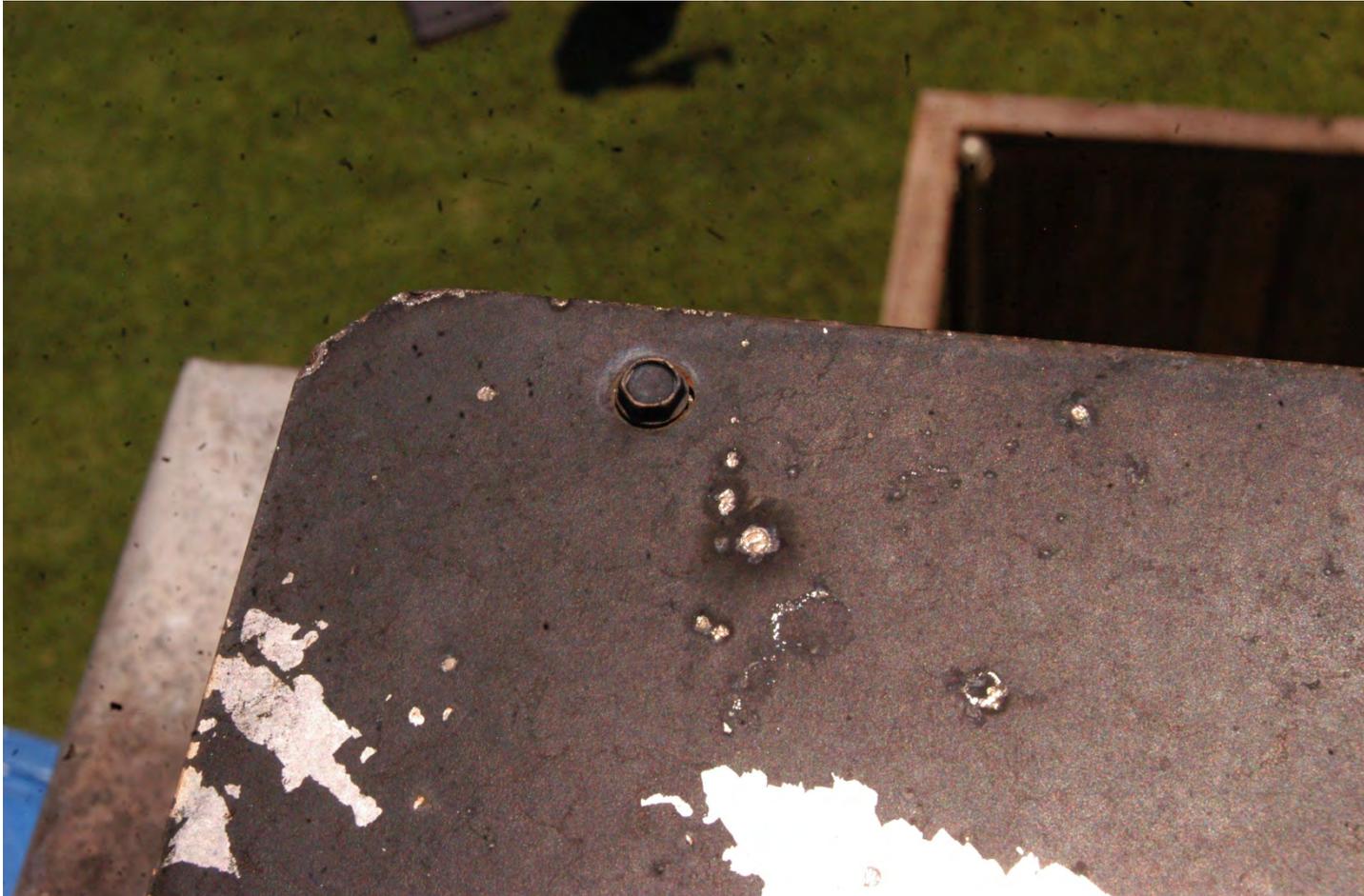
CSST Fire #13



CSST Fire #13



CSST Fire #13



CSST Fire #14

- Energized Gas Line Fire
 - Single Story Brick Construction

CSST Fire #14



CSST Fire #14



CSST Fire #14



CSST Fire #14



CSST Fire #15

- Energized Gas Line Fire

CSST Fire #15



CSST Fire #15



CSST Fire #15



CSST Fire #15



CSST Fire #15



CSST Fire #16

- Energized Gas Line Fire

CSST Fire #16



CSST Fire #16



CSST Fire #16



CSST Fire #16



CSST Fire #16



CSST Fire #17

- Energized Gas Line Fire

CSST Fire #17



CSST Fire #17



CSST Fire #17



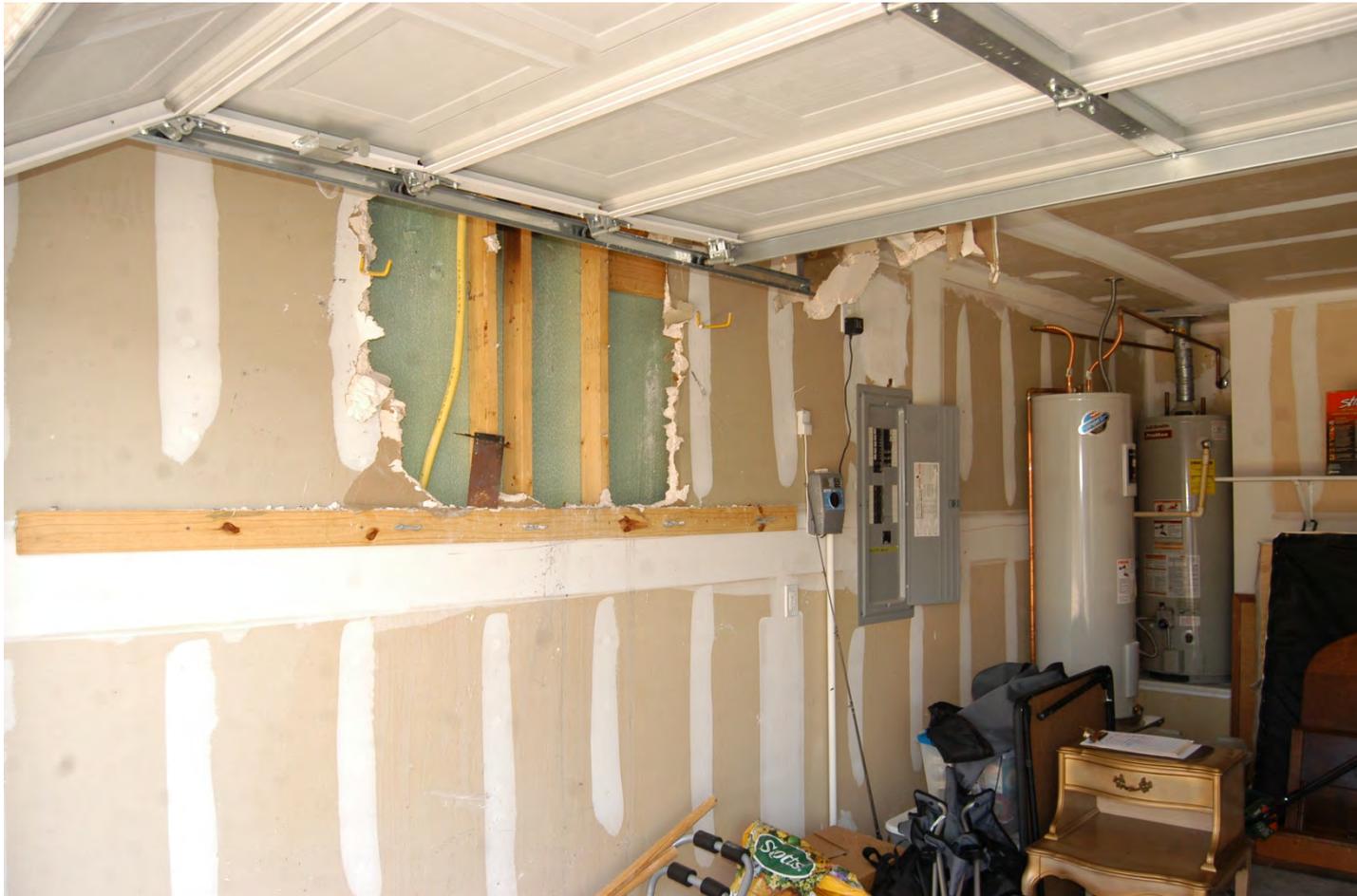
CSST Fire #18

- Energized Gas Line

CSST Fire #18



CSST Fire #18



CSST Fire #18



CSST Fire #18



CSST Fire #18



CSST Fire #19

- Energized Gas Line
 - Two Story Brick Residential

CSST Fire #19



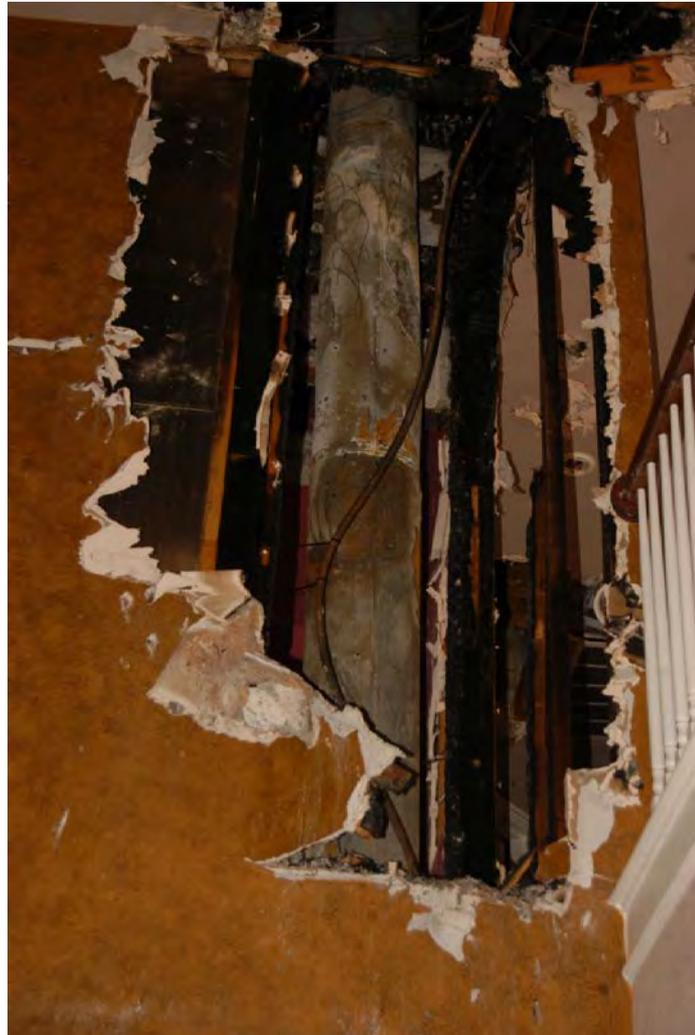
CSST Fire #19



CSST Fire #19



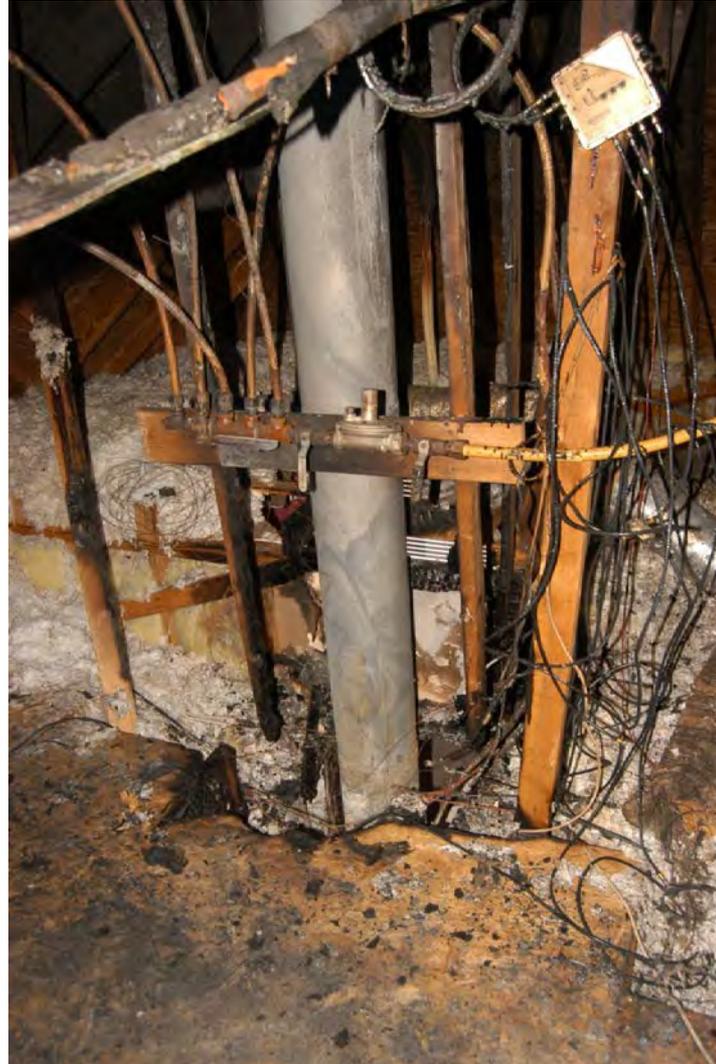
CSST Fire #19



CSST Fire #19



CSST Fire #19



CSST Fire #20

- Energized Gas Line

CSST Fire #20



CSST Fire #20



CSST Fire #20



CSST Fire #20



Patents

- Patent # 7,607,700 B2 – Sealing device with ridges for corrugated stainless steel tubing – titeflex
- Patent # 7,690,693 – Pre-assemblable, push-in fitting connection for corrugated tubing – Parker Hanafin
- Patent # 7,677,609 – Reusable fitting for corrugated tubing – Omegaflex
- Patent # 7,621,567 – Corrugated tube fitting with a ridge sealing device and method - Titeflex

Patents

- Patent # - 7,607,700 – Sealing device with ridges for corrugated stainless steel tubing – Titeflex
- Patent # 7,562,448 – Method of preventing electrically induced fires in gas tubing – Goodson
- Patent #7,367,364 – Fire retardant Jacket for tubing – Omega Flex

Patent Picture



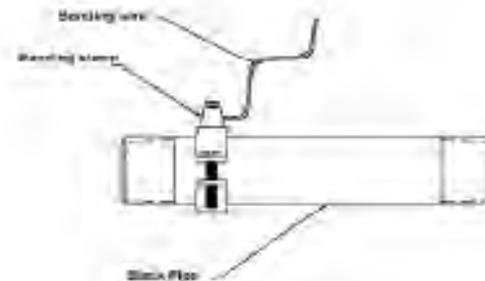
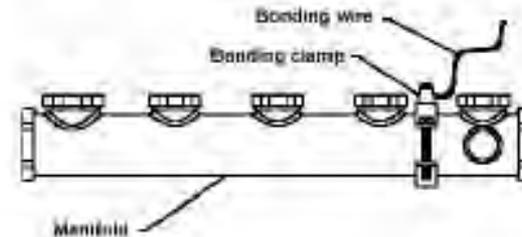
Attachment Points

Between meter and first CSST fitting

Attached to pipe or pipe component per the clamp listing

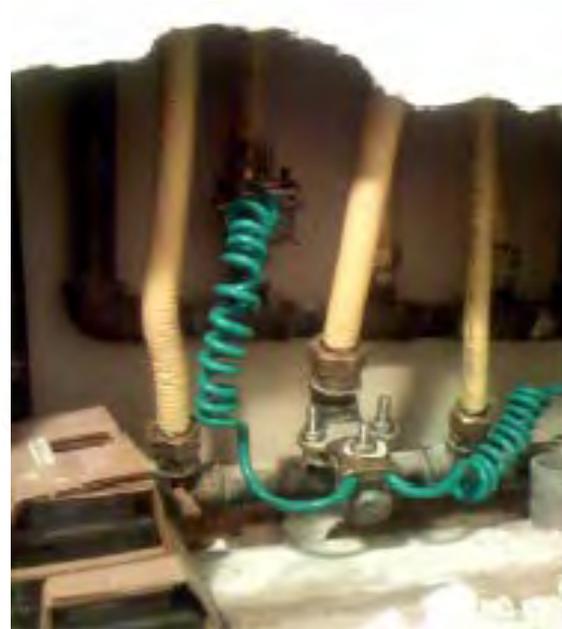
Never attach to corrugated tubing itself

Insure metal-to-metal contact between clamp and sub-surface



Bonding Clamp

- Listed to national standard
- UL 467
- Attached in accordance with NEC 250.70 and listing
- Always accessible



New Material

- Rushing House – 2012 LBB
 - Direct Strike
 - Brennen Teel died
 - Smoke explosion
-
- Bonding & grounding DO NOT RELIABLY WORK



Teel / Rushing



Teel / Rushing





BIP



Bonding



Bonding



Perforation



Perforation

Teel / Rushing

- Direct strike
- Fire in attic
- PU foam
- Smoke explosion
- Exited scuttle hole
- Killed young Mr. Teel – fireball
- Bonded per code

New Research

- Bonding & Grounding
- *Fire Technology*, 2016
- Bonding and grounding can make things worse
- Dr. Thomas Eagar, MIT
- *“In some cases we found that grounding increased the charge through the arc, increasing the probability of perforation.”*

Legal Arena

- What is the status?
- Lubbock
- Oklahoma
- Texas Legislature 2017

Bonding Continuity

- How to test in the field?
- Only one practical way for a 'one person' test
- Why?
- Connections hidden



Why We Exist

New London, Texas

March 18, 1937